

REPORT

Of a majority of the Committee on the subject
of the Raccourci Cut-Off.

The committee to whom was referred the report of the State Engineer, relative to the Raccourci Cut-off, have given to the subject as careful a consideration as their other public duties, during the time this subject has been before them, would permit. They have weighed well the great importance of the proposition to make the Cut-off, and present the conclusions to which they have come, with a due appreciation of the responsibility resting upon them for the correctness of their conclusions. The immense resources of the entire country between the Red and Mississippi rivers, including a large portion of the State of Arkansas, as well as of the district of country West of Red River, are to be materially developed and improved by the work, if the view which your committee has taken of it be correct, or injured by allowing the navigation from Red River to the Mississippi to close without an effort to keep it open, by neglecting the work. Your committee are of opinion that the extent of country particularly interested in this matter will, at a day not very distant, if not impeded in its progress by narrow and contracted legislation, but fostered by a reasonable degree of liberality and justice, yield an amount of agricultural products for market, equal in value to the whole amount now produced by the State of Louisiana.

The report of the State Engineer is opposed to this work, and as your committee differ totally with him, as to the propriety and expediency of the work, it becomes their duty to answer his principal and material assertions in opposition to it. He states, page 8th of his report of 9th February, 1846, "that his opinion is against the expediency of making the Raccourci Cut-off, and against all Cut-offs whatever on the Mississippi river, and for the following reasons :

1st. Although the Raccourci Cut-off may benefit the land immediately above, it will cause serious injury to all that portion of the State below it. This results from its increasing the level, quantity and velocity of the water below."

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posite at those places. The bed of Old River will continue to rise, as the deposit settles upon it. The obstruction to navigation from this cause is steadily and gradually increasing, and the waters of Red River are gradually changing their course down the Atchafalaya. This Old River is now the only navigable outlet to the Mississippi, for the products of the entire countries bordering upon the Red and Ouachita rivers and their tributaries. About twenty-five steamboats are annually employed in the two trades, many of them carrying 1200 to 1500 bales of cotton each, besides keel and flat boats that are taken into those trades with produce from the Western States.

The evidence taken, shows, that in the year 1830, or about that time, and probably since, there was a portion of the year when there was no water entering the Atchafalaya, and the last fall (1845,) when the water was nearly or quite at its lowest stage in Old River, the water at the mouth of the Atchafalaya was from six to eight feet deep. Showing that as the Old River fills up the mouth of the Atchafalaya into which the Red River water is diverted, is constantly deepening. This effect has also been produced in part, by clearing out and facilitating the current of the Atchafalaya, which two causes combined, viz: The great amount of deposit in, and at the mouth of Old River in times of high water, and the improvements of the channel of the Atchafalaya, by removing obstructions and clearing it out, render it strongly probable that without some aid the navigation of Old River in low water, will in a short period be closed, and before many years be closed at all stages of water, and the entire waters of Red River will pass down the Atchafalaya.

Your committee are of opinion that it would be a permanent advantage to the navigation of Old River, to make the cut-off, as it would produce at the entrance of that river to the Mississippi, a reduction of height of water, and thereby decrease the quantity of comparatively dead water, and of eddy water in times of high water, and to the extent of such reduction remove the causes of deposit. That the velocity of the water in Old River being increased by the decrease of level in the Mississippi, would have a tendency to wash out and deepen the channel of Old River, and to that extent, divert the water from its tendency to flow down the Atchafalaya. This increase of velocity in time of extreme low water, would of itself have a tendency by creating an additional strength of current, to impede boats in their upward passage, but this would be compensated by an additional quantity of water, that would be diverted from the Atchafalaya.

The evidence taken, also shows satisfactorily, that no injury to the navigation of Red River at Grand Point, is to be apprehended from making the cut-off.

Your committee are convinced of the propriety of placing a dam at the mouth of the Atchafalaya, the top of which should be so far below the surface, as not to injure its navigation, the water being some feet deeper at the mouth, than at other places some miles down from the mouth. Rock could be obtained below Fort Adams, with which a dam could be made, by sinking it upon a bed of square timber. A sufficient dam for the present it is thought could be made if the work were let out by contract, for five thousand dollars. If within the legitimate duties of your committee, they would unhesitatingly recommend an appropriation for that purpose.

4th. EFFECT UPON NEW ORLEANS.—The city of New Orleans has a deep interest in this whole subject. The stopping the navigation from Red River into the Mississippi, may divert the products from that region to the Gulf of Mexico, by a different route, than by the way of New Orleans. The improvement of lands when redeemed from overflow, will add new sources of commerce and wealth to the city as well as of revenue to the State. In addition to this, there will be a saving in transportation of produce and merchandize, by shortening the distance of travel twenty-nine miles, the distance round the bend of a very large amount.

The work is one of great national importance, and ought to be done by the federal government, but if the State delay it for the action of the United States, the delay may be ruinous, as it is a work that ought to be completed at once.

Evidence and letters annexed, Walter Turnbull, Wm. M. Wilson and Hiram Wilson, No. 1. That of Capt. J. M. Phillips, Peter Dalman and David Maguire, No. 2. The letter of P. F. Kimball, No. 3. Letter of T. B. Leonard, No 4.

Your Committee recommend the adoption of the following resolution.

Resolved by the Senate and House of Representatives of the State of Louisiana in General Assembly convened, That all the State hands be taken at once to the Raccourci Cut-off, and that they commence the work, as soon as possible, and continue to work at it until it is completed.

(Signed)

G. MAYO, Chairman.

I concur in the general features of the foregoing report, but differ from it in relation to some of the details.

(Signed)

THOS. C. PORTER.

I concur in the foregoing report in every particular.

(Signed)

R. A. HUNTER.

[DOCUMENT NO. 1.]

Walter Turnbull, a witness examined before the committee, relative to the Raccourci cut-off, states that he now resides in the Raccourci settlement, where he has resided since the year 1833; that he has observed the effects of the Red River cut-off upon the west bank of the Mississippi, particularly since the year 1833, and is of opinion, that it has caved in to the extent of about one quarter of a mile; that in the year 1831, at the time the Red River cut-off was made, the current of the Mississippi, passing through the cut-off, struck the west bank of the Mississippi nearly at right angles, and still continues to strike it nearly in the same way; that the distance round the bend, before that cut-off was made, was about eighteen miles; that he has always, since his residence in the country, understood from his neighbors, that in time of high water at Natchez, the water in the Mississippi, at the place where witness resides, about twenty miles below the Red River cut-off, is about three feet lower than at the same stage of water before the cut-off was made; that the same effect has been produced at the Red River island, which has been redeemed from overflow by the reduced stage of water at that place in the time of high water; that in the year 1828, before the cut-off was made, the plantation on which he now resides—where his house stands—was overflowed about two feet; that in 1844, there was about a foot bank, the water being about as high, he is informed, in 1844 as in 1828 at Natchez; that he has frequently observed the situation of the river at the place where the cut-off was attempted to be made across the Raccourci bend, and on examining the maps from the office of the State Engineer, said to be made from actual survey, he recognizes the relative position of the anticipated cut-off to the river, above and below, to be as he supposed it was; that from the manner in which the water, in passing through the anticipated cut-off, would strike the river below, he is of opinion that the water would soon accommodate itself to the original channel be-

low; that on the west bank of the river, at that place, there is a large bar, which any additional force of current would have to spend itself upon, before striking any high or cultivated land; before that bar would be washed out, he is of opinion the channel of the river would become regular and cease, to a great extent, to wash away the bar—the distance round the bend is about twenty-nine miles, which would be saved in travelling to boats passing up and down the river; that he is satisfied, judging from his knowledge of the effect of the Red River cut-off and others on the Mississippi, that the effect of making the Raccourci cut-off, would be to reduce the height of the water, in high water, to about the extent of the fall between the upper and lower end of the cut-off, without doing any harm below, and that it would redeem the land above, by reducing the height in high water.

(Signed)

WALTER TURNBULL.

Sworn to and subscribed before me, }

this 4th March, 1846, }

(Signed)

G. MAYO, Chairman.

STATE OF LOUISIANA, }
City of New Orleans. }

William M. Wilson, Captain of the steamboat Annawan, being sworn by G. Mayo, chairman of the committee to investigate the subject of the Raccourci cut-off, states that he has been navigating the Mississippi and Red River up to the Black River, commencing in the year 1841, and continuing until this time, and that, during that period, he has observed the navigation, particularly between the Mississippi and the mouth of the Red River; that he is satisfied that the quantity of water discharged from Red River, in low water, down the Atchafalaya, is steadily increasing as impediments to the current of that river are being removed and the velocity increased; that a large bar has formed and is increasing annually, on the island side of Old River, near the mouth of Red River, on the route from the mouth of Red River to the Mississippi, in low water, which has, within three years, changed the navigable channel between the mouth of Red River and the Mississippi, in low water, from the island side of Old River to the east bank of Old River, where said bar is situated. This deponent is of opinion, that to reduce the height of water in the Mississippi, at the entrance of Old River into it, would have a tendency, in time of high water, by decreasing the

amount of eddy water at the mouth of Old River, to decrease the deposite at said place in proportion to the amount of decrease of eddy water, and that by facilitating the current in Old River in low water, that it would have a greater tendency to wash out and deepen its channel, and direct the current from its course down the Atchafalaya; that in his opinion, no bad effects can be reasonably expected upon the navigation in Old River, from any reduction in the height of water that may be caused by cutting off the Raccourci bend.

(Signed)

WILLIAM M. WILSON.

Sworn to and subscribed before me, }

this 5th March, 1846, }

(Signed)

G. MAYO, Chairman.

Hiram Wilson, Captain of the Wheel of Fortune, states that he has been navigating the Red River, to and down the Mississippi, from the year 1841 till this time, and that he concurs fully with the above statements of William M. Wilson, in every particular.

(Signed)

HIRAM WILSON.

Sworn to and subscribed before me, }

this 25th day of March, 1846, }

(Signed)

G. MAYO,

Chairman of the Committee.

[DOCUMENT NO. 2.]

STATE OF LOUISIANA, }

Parish of Orleans. }

John M. Philips, a witness, appeared before the committee on the subject of the Raccourci cut-off, states that he resided within a mile or two of the place where the Red River cut-off was made in the year 1830 or 1831, and continued to reside there until 1838; that he has observed the effects of that cut-off particularly; that the current of the Mississippi, when said cut-off was made, in passing through the channel cut, struck the west bank at nearly right angles; that the west bank of the river, where the current strikes it after passing through the cut-off, has, since the time (1830 or 1831) the said cut-off was made, caved in to the distance of about a half to three quarters of a

mile; that the water, in what is now called Old River, being the old channel of the Mississippi, fell within about three days after making said cut-off, about two or two and a half feet. He states that the effect of making the cut-off of the Racourci bend would, in his opinion, be to reduce the height of the water of the Mississippi, at the place of the anticipated cut-off, and above, in proportion to the fall between the upper and lower end of the cut-off, and that the fall at the place where the navigable channel of Old River, in low water, enters the Mississippi, would be nearly as much, as at the upper end of the cut-off; that the effect of reducing the height of the water in the Mississippi, at the entrance of Old River into it, would be to increase the velocity of the current in the upper or navigable channel of Old River, between the Mississippi and the mouth of Red River; that the tendency of increasing the velocity of the water in the navigable channel of Old River, would be to wash out and deepen said channel, and by decreasing the amount of eddy water at the mouth of Old River, in times of high water, would diminish in proportion the quantity of deposite at that place; that in or about the year 1830, there was a portion of the year when there was no water entering the Atchafalaya; he thinks this has been the case since that time. During the last fall, when it was with great difficulty that boats of very light draught navigated Old River from the mouth of Red River to the Mississippi, there was at the entrance into the Atchafalaya from Old River, from six to eight feet water, and the depth of the water, at its entrance into the Atchafalay, is increasing annually—produced, as witness thinks, by removing obstructions in the Atchafalaya, and by the filling up of the channel from the mouth of Red River to the Mississippi. Witness is satisfied, from observation, and his knowledge of the effects of the operations of water generally, that the navigation of Old River, from the mouth of Red River, would be materially improved by making the cut-off of the Racourci bend; that he is acquainted with the situation of the river at the place, and all the way to New Orleans below it, having navigated the river every year since 1838, from New Orleans to Black and the Ouachita river, and he is of opinion that no injury can reasonably be apprehended to result from the effects of said cut-off to the land below.

(Signed)

JOHN M. PHILIPS.

Sworn to and subscribed before me, the undersigned, Chairman of the Committee of the Senate, this 10th day of March, 1846,

(Signed)

G. MAYO.

STATE OF LOUISIANA, }
 Parish of Orleans. }

Peter Dalman, captain of the steamboat *De Soto*, states that he has been engaged in the several capacities of mate, pilot and captain of steamboats navigating from New Orleans to Alexandria on Red River, during the last twenty-six years and the last eight or ten years of that time as master of different steamboats. That he has during that time observed particularly the effects of the Red River cut-off, that he has reflected much upon the subject of the effects of making a cut-off, of Raccourci bend, and concur fully with the statements of Capt. Phillips, whose affidavit precedes this, in relation to its producing a fall in the height of the water in the Mississippi, and also in relation to its effect upon the navigation of Old River, between the mouth of Red River and the Mississippi. And further, he states that he has seen the water as low, if not lower over the bar at Grand Point in the Red River, previous to the opening of Shreve's cut-off, as he has known it since. That the navigation over that bar at Grand Point has not been injured by the Red River (Shreve's) cut-off and it is his opinion that the navigation over that bar would not be injured by making the Raccourci cut-off.

(Signed)

PETER DALMAN.

Sworn to and subscribed before me, }
 this 11th March, 1846. }

(Signed)

G. MAYO,
 Chairman of Committee.

STATE OF LOUISIANA, }
 Parish of Orleans. }

David Maguire, a witness states that he has been navigating the Mississippi and Red River, to Alexandria, during the last twenty-four years in various capacities, a considerable part of the time as captain of steamboats. That he has observed particularly the effects of Shreve's cut-off upon the navigation of the Old River, as well as Red River, and concur, fully with the foregoing statements of Capt. Phillips and Capt. Dalman in relation to the effects upon the navigation, that would be produced by making the Raccourci cut-off. That if any change would be produced

at Grand Point by making the said cut-off, it would be to improve the navigation at that place.

(Signed)

D. MAGUIRE.

Sworn to and subscribed before me, }
this 11th March, 1846. }

(Signed)

G. MAYO, Chairman of Committee.

[DOCUMENT NO. 3.]

J. J. A. Plauché, Esq. :

MY DEAR SIR: I have the pleasure of furnishing you, according to your request, with my views respecting the Red River and Raccourci cut-offs.

I have been familiar with Red River since 1826. The fall of 1827 being the first low water I experienced on that river, and the seasons of the lowest water which has come under my observation has been 1827, 1830, 1838, 1842 and 1845. There may have been other seasons of equal low water, with which I was not familiar.

As regards the effect which the Raccourci cut-off will have on Red River, I am induced to believe will be beneficial. The effect produced on Red River by the Red River cut-off, whether for good or evil, is a subject for conjecture. Had the Red River cut-off never been made, would not the Atchafalaya, after cleaning out its bed by the State, been likely to have carried off a part or all the waters of the Mississippi, as they would have thus reached the Gulf of Mexico in one-third less distance than the present meanderings of that river.

The Red River cut-off, I think, was made by Capt. Shreve, in December, 1830. The first very low water which came under my observation after that date was 1838; at this time the mouth of the Atchafalaya was so nearly dry that it could be crossed without going over shoe-tops, at the same time there was as much water on Grand Point (the shoalest part of Red River below Alexandria,) as there was in the fall of 1827 and 1830. The next season of very low water which came particularly under my observation was 1842; at this time the water on Grand Point was equal, if not superior to the previous years mentioned, and in the mouth of the Atchafalaya there was from five to six feet depth of water; the last low water, in the fall of

1845, there was equally as much water on Grand Point as any previous years, back to 1827; at the same time there was light water in the mouth of the Atchafalaya, now the Atchafalaya has deepened its bed, at the mouth or the bar at the outer end of Red River island, has raised the water in Old River, which I think is not the case or there would be a corresponding rise on Grand Point, which has not been; while changes were going on below, extreme low water on Grand Point did not vary from the fall of 1827 to the last low water fall of 1845. Now if the force of Red River current alone, since clearing out the obstructions in the Atchafalaya, has had the tendency to deepen the bed of that river, what would have been the effect if the whole current of the Mississippi had continued to flow into and by its mouth?

The present Red River cut-off has shortened the distance to Natchez more than twenty miles, doing much good by reclaiming lands on the Atchafalaya, Bayou de Glaze and Red River, below Alexandria, and doing little or no injury that I am aware of.

The Raccourci cut-off would shorten the river still more, making a fall of two feet at the outer end of Red River island, which I think would have a beneficial effect by giving impetus to the current of Red River, and if not removing the bar at the outlet, at least prevent an increase of it, while at the same time the current through the cut-off would strike the river at the head of Tunica bend in nearly a straight line. The Pointe Coupée side is protected by a point made far out into the river opposite the upper end of Tunica bend, which would protect that side of the river entirely from the force of the current through the cut-off.

This, in extreme high water, would relieve Red River very much, as it is the back-water of the Mississippi which inundates the banks of Red River, even above Alexandria.

With much respect, your ob't servant,

(Signed)

P. F.

New Orleans, March 12, 1846.

[DOCUMENT NO. 4.]

NEW ORLEANS, March 16, 1846.

Gentlemen: I have had the honor to receive your note of the 13th inst., requesting a statement of my views in reference to the effects likely to be produced by the completion of the Raccourci cut-off.

This subject has been so ably discussed by Major W. S. Campbell, in a report to the House of Representatives last year, and recently by the State Engineer, that it is scarcely necessary for me to do more than say that I fully concur with those gentlemen, in the views they have expressed.

The work will be productive of most mischievous consequences to the lower part of the Mississippi, and the benefit expected to result to the part above the cut-off, by a depression of the surface of the stream, will be, in a great measure, counterbalanced by the more rapid caving of the banks.

The effect of the proposed work upon the navigation of Red River, will be, in my opinion, to shorten the period of safe and easy navigation, and to increase the difficulties of the navigation, or even render it impassible during extreme low stages of water. At such times, the current rushes out of Old River with a velocity too great to be stemmed by steamboats. The cut-off will produce a reduction of two feet in the low water level of the Mississippi at Shreve's cut-off. This additional fall will obviously cause a great acceleration of velocity, and depression of the surface in Old River; sufficient, in my opinion, to justify the prediction that boats would not be able to pass into Old River at all during low water.

Very respectfully, gentlemen,

Your obedient servant,

T. B. LEONARD,

Capt. T. Engineers.

Hon. G. Mayo, J. Taylor, W. S. Parham, Committee.

The undersigned, to whom were referred the Resolutions in relation to the Raccourci Cut-off, beg leave to

REPORT

That they have taken the matter into consideration, and submit to the Senate the following remarks in relation to the same.

The undersigned beg leave in the first place, to call the attention of the Senate, to the extreme importance of the subject under consideration. Red River is one among the largest tribu-

ries to the Mississippi. It flows eastward from the Rocky Mountains near 2000 miles through a valley, unsurpassed in the world for the richness of the soil. To the people who live in this valley, the free and open navigation of that river, is of the last importance, and any thing which will be calculated to impair this blessing, will be met with universal opposition. For some years past the navigation of this river has been, at certain seasons of the year, greatly obstructed not only at the mouth, but in many places throughout its entire length, occasioning great delays in the shipment of produce from above, and in supplying the population with necessaries from below. It is a matter which has engaged the public attention for a long time, and to the whole population above the falls at Alexandria, it is a subject of the deepest interest. Calls have been made in vain upon the General Government, to come to our aid to improve the navigation at the mouth, and although former appropriations have been fruitless, we still look with hope to that quarter for assistance. Of late, however, a new project has been started, by which the people of that great valley are to be secured in permanent improvement of the navigation of the Red River. And "wonderful to relate," it is seriously proposed to improve the navigation, by taking away the water we have. We think it proper to detain the Senate with a brief history of this project to cut through the Raccourci Bend.

In March, 1843, in the House of Representatives, a report was made by Mr. Phelps, of Catahoula, in favor of the Raccourci Cut-off. (See Journal of 1843, p. 96.)

At that time, let it be borne in mind, the Mississippi and Red River were both very high, and all the country below Alexandria, nearly under water. At this period the project is started. Vast tracts of land in Rapides, Catahoula and the adjacent country are under water, and the idea is started that it will improve the navigation of Red River by lowering its waters *three feet*, if the Mississippi were made to run through Raccourci Bend. *Those three feet water were to be taken off of the overflowed land*, and without imputing to those who commenced this project any improper motives, the undersigned are constrained to think, that the draining of the lands on Black River and the country adjacent, was one of the objects with which this proposition was begun.

On the 28th of March, 1843, the whole project was laid on the table by a vote of 25 to 15. (See Journal of House p. 97.)

In 1844, the subject was resumed, and on the 1st of March, 1844, at the instance of one of the undersigned, the whole matter was laid on the table indefinitely, by a vote of the House of 22 yeas and 18 nays. (See House Journal, 1844, p. 81.)

At the same session it was still persisted in, and on the 11th of March, (p. 92,) it appears to have passed, but the vote is not given. In the Senate, see Journal, (p. p. 74, 75) 1844, it appears that the resolution was rejected by one vote, was subsequently re-considered, and on the 23d of March, 1844, was finally passed, the vote not given.

From the foregoing, the Senate will perceive the pertinacity with which this matter has been pressed from the beginning, and the resistance which has been opposed to its passage. It appears also, that it received final legislative sanction, against the convictions of nearly one half of each branch of the General Assembly.

The work appears to have been undertaken, and has not been accomplished, and the present Engineer estimates the cost for its completion at \$20,000.

The question for the Senate to decide is, shall this work be carried on, or shall it be stopped.

The undersigned beg leave to submit to the Senate, a few reasons why the work ought not to be further prosecuted, and in doing so, they state that they have consulted those whose information on the subject was most likely to enlighten the Senate. But they are of opinion that they cannot err in this, that the work contemplated ought not to be further prosecuted, unless it be made perfectly clear to the Senate, that the work will prove an advantage to the navigation of Red River. It will not do to say that it is an experiment. The interests involved both above and below the Cut-off, are of a character too important to be exposed to such a chance. No legislation can be proper on such a subject except it be made to clearly appear that the end desired can be relied upon with reasonable certainty.

Where then, shall we go for information? Upon whom shall we call? Experience would prompt us to go to those whose profession and whose business it was to be informed on such subjects. Such has been the action for centuries past, of all enlightened nations, and no one has yet had the hardihood to say that such is not right and reasonable. To such gentlemen we have applied.

The first evidence we offer on this subject is contained in a

letter addressed by C. Crozet, Esq., dated March 8th, 1844, to Gen. S. W. Downs then of the Senate, on this very subject.

His letter will be found at p. 52, Senate Journal 1844, in which he states, that the proposed work of the Raccourci Cut-off, "will make Red River shallower still," his letter will be appended to the foot of this report, and it is especially referred to, as the said gentleman was over ten years ago State Engineer, and is we are informed a gentleman of great judgment and experience.

Next we have the clear and elaborate report of the late State Engineer, Geo. T. Dunbar, Esq., on this very subject. He surveyed and made a map of the whole of both mouths of Red River, and of the Atchafalaya, and on the 11th of January, 1843, submitted the whole to the House of Representatives. His report is appended hereto, and made part of this report, and the attention of the Senate is respectfully called to the same. To this report we attach special importance as well on account of the acknowledged ability of the gentleman by whom it was made, as from the fact that he gave the subject a full and perfect investigation.

These gentlemen concur in the fact that the water at the mouth of Red River will be greatly depressed, its navigation severely injured, and that the contemplated work will expose to great peril, the country below the Cut-off. When it is remembered that both Mr. Crozet and Mr. Dunbar were Engineers of the State; that they have examined the subject; that they are both men of experience, and that both so unhesitatingly condemn the work as hurtful and dangerous. It seems strange indeed that this fatal project should have been adopted. But the undersigned have further evidence:

At the last session of the General Assembly, a report was made by Major Wm. S. Campbell, of the House of Representatives,—now a member—in which he also condemns the Raccourci Cut-off. The Senate will bear in mind that Major Campbell is a gentleman of distinguished talents, an Engineer, and gave to this subject a full examination. His clear and masterly report, to which the attention of the Senate is requested, is annexed hereto and made part of this report. Next in order, we beg to call the attention of the Senate to the report submitted at the present session by Mr. Hébert, the present Engineer.

It is needless to speak of the eminent qualifications of this gentleman, and as his report is fresh in the recollections of the

Senate, no further reference will be made to the same, except simply to state that he concurs with the three other gentlemen whose reports have been adverted to. These, surely, ought to have some weight with the Senate, at least enough to create a doubt about the propriety of a further prosecution of the Cut-off.

But these are not all. Capt. Leonard, an Engineer in the service of the United States, and for some years charged by the Government with the sole management of the improvements on Upper Red River, has addressed a letter to the committee at their request. His letter is annexed hereto and made part hereof. He concurs fully with Major Campbell and Mr. Hébert, and declares his conviction that the contemplated Cut-off will so lower the surface of the Mississippi as to prevent boats entering Red River at all during low water. His letter is particularly referred to.

Major Ranney, an Engineer of distinction, has also been called upon, and although he has handed no written answer to the committee, has stated his full conviction that the Raccourci Cut-off will injure the navigation of Red River.

Here, then, are the opinions of six gentlemen, all Engineers and all concurring in condemning this work. And in the opinion of the undersigned, the judgment of any one of them is justly entitled to more weight than the opinions of twenty ordinary persons. It seems, therefore, to be clearly apparent that the work will not be beneficial, but, in all reasonable probability, destructive of the very ends its execution is intended to effect.

The lands adjacent to the mouth of Red River may be drained some three feet by the work, but in doing this, we precipitate the weighty flood of the Mississippi upon the country below, exposing all the levees to be washed away, and creating evils which would be almost irreparable. In high water there can never be any difficulty to the navigation of Red River, and in high water, in the Mississippi, the low lands adjacent to the mouth of Red River must overflow, unless protected by powerful levees. It is of the last consequence, however, that Red River should be kept open at all seasons of the year. Now, in low water, it is with extreme difficulty that the lowest draught boats can enter Red River. Take away three feet more from the Mississippi to Red River, (for they will fall together) and, in the language of Captain Leonard, "boats could not enter at all." This is what we fear. The evils are great enough already, without "flying to others that we know not of." Lower the Mississippi three feet when we have now, in low water, but two feet on the

bar at the mouth of Red River, and it is clear that Red River will precipitate itself into the Mississippi with a velocity that no boat could resist, and when its waters were cut down to the level of the Mississippi, how could boats enter? And even if they did enter the mouth, how far up could they go, wanting the three feet which has been already washed in the Mississippi? Other bars would rise as you ascend, and the now poor and sickly stream, robbed of the little water it had before, could not bear upon its bosom either boat, freight or passengers. And to these evils and perils are we to be exposed against the mass of evidence submitted to the Senate? We therefore respectfully recommend the adoption of the following resolution:

Resolved, That it is the sense of the two Houses of the General Assembly, that the Raccourci cut-off is a work full of danger and therefore inexpedient; that the same be closed as speedily as practicable.

Respectfully submitted.

(Signed)

J. TAYLOR,
DUNCAN F. KENNER.

[DOCUMENT NO. 1.]

NEW ORLEANS, March 8th 1844.

Gen. S. W. Downs:

SIR: I have reflected on the subject of the impediment now existing at the mouth of Red River, and about which we had a conversation a few days ago, and arrived at conclusions which I have thought better to reduce to writing.

In the first place I will say a few words of the cause of the bar. Before the opening of Shreve's cut-off, the Mississippi might have had a fall of thirty inches round the bend, about one-half of which is from the upper elbow down to the mouth of Red River. The sudden depression of nearly the whole fall at the cut-off has reverted the course of Red River, which now flows towards its upper inlet; this shows evidently a more rapid slope along the upper than in the lower section of Old River.

The natural effect of this change has been that Red River in falling into Old River, spreads its waters into two arms of the bend and has become a sluggish stream. Hence a rapid deposit must have been formed by the muddy waters of the Mississippi, beginning, of course, at the edges of the new current of the

principal river.—The Red River can never resume its course down the lower section of the bend, and therefore any plan which has been proposed, has in view to improve its depth over the bar above the cut-off.

Among other things it is proposed to close the Atchafalaya, under the apprehension that Red River may take its course that way. I do not, for my part, believe that any such effect will be produced. The Atchafalaya does not afford a sufficient channel and immediate fall to draw off the waters of Red River, or else it would have done it long ago; the waters of Red River will now, as heretofore, find a deep basin to receive them, and will therefore continue to be drawn towards it. No doubt the closing of the Atchafalaya would add something to the activity of the current of Red River along its extension through the old bed of the Mississippi, but in a degree which I believe would be found quite incommensurate to the cost of the improvement.

The most prominent plan proposed is to cut across the Racourci bend, with the idea that thus the level of the Mississippi would be considerably depressed, at and above Shreve's cut-off, and thereby the activity of the current at the new mouth of Red River increased—so far I agree with this opinion. But I do not hesitate in saying that the effect as to deepening the channel over the bar would be the reverse of what the persons who propose to cut through the Raccourci bend expect.

An opinion so directly at variance with that of intelligent and respectable men, requires on my part to be sustained by conclusive arguments. It is an almost self evident principle that *the same quantity of water must pass in the same time through every section of the channel of a river*—whence this consequence immediately flows that whenever the velocity is greater, the section of the stream must be smaller and vice versa; and that if the width is uniform the depth is less when the velocity is greater.

Therefore if the Mississippi was farther depressed and thereby the current of Red River increased, it would become shallower still. Suppose, for instance, that a fall of ten feet additional could be given, of course the top of the bar might be swept away, but the sheet of water over the remaining part would be still thinner; for whatever may be the force of the current, it will necessarily be deadened at the junction with the Mississippi; a bar must exist, then, over which the depth will be determined by the velocity and width of the current, so as to pass exactly the body of water coming down Red River, and no more.

Having, I hope, demonstrated the danger of the proposed undertaking, I would be happy if I could as readily point a simple remedy; but the task is not easy. I have no doubt that the fall from the old to the new mouth of Red River is no greater than its general fall above: the current will ultimately cut a channel of suitable dimensions through the sediment, when it shall have accumulated to a sufficient height on the sides of Old River. If, as I fear, the additional fall is greater than above, the final new channel must be either narrower or shallower; but as I have not taken or seen any survey and level of the localities, I cannot pronounce on this point with certainty. The forming of a reduced channel will be the work of time, and in the meanwhile the people of Red River are suffering from the impediment to their free navigation. Whether or not it could be practicable to accelerate the formation of a well regulated channel, I have not sufficient data in my possession to decide.

From what I have said above it will appear that the plan should be, 1st. To measure the fall and dimensions of the general bed of Red River, and then, 2dly, to reduce the dimensions over the bar by artificial works to that width which would, according to the fall of the new part, procure the requisite depth. But would the sediment which forms the bar afford a sufficient support for piles or other works? This I am not now competent to decide without having before me the results of a judicious examination, still less can I form an opinion of the cost. This, however, I am certain of, that it would not be, by any means, as great as cutting across Raccourci bend.

As regards the cutting across bends, I had occasion in 1833, while State Engineer, to give an opinion against such measures, founded upon this principle—that through alluvial soil, the bed of a river cannot be permanent, so long as the current is strong enough to displace and set in motion the soil of the banks. Therefore by successive ablations it will increase its length, and thereby diminish the fall, until it has become sufficiently sluggish not to abrade any longer its banks. The numerous bends of a stream in such a country are consequently essential for its permanency; and if you cut across any of them, you increase the force of the current, which must again destroy the banks, until by the reformation of an equal bend it has been reduced to its original inoffensive placidity.

I am, with respect, your obd't servant,
(Signed)

C. CROZET.

[DOCUMENT NO. 2.]

REPORT

Of the State Engineer, in relation to the obstructions at the mouth of Red River.

ENGINEER'S OFFICE.

New Orleans, January 11th, 1843. }

To the Honorable the House of Representatives of the State of Louisiana.

IN compliance with the resolution of your Honorable body, passed the 9th inst., calling upon the Engineer to report upon the difficulties at the mouth of Red River, and the proposed cut-off at the Tunica bend, I have the honor to submit the following Report:

In making a report upon this important subject, to avoid the controversy attendant upon conflicting opinions, I shall as near as may be, confine myself to my observations, and state the facts as they occur.

On the 18th of January, 1839, there was $5\frac{1}{2}$ feet water over the bar at the mouth of the Atchafalaya, 18 inches over the bar in the lower mouth of the cut-off, and ten feet over the bar in the upper mouth. showing a difference of $4\frac{1}{2}$ feet between the bars of the Atchafalaya and the upper mouth. On the 18th of February 1839, there was 17 feet in the upper mouth, with no current, $12\frac{1}{2}$ feet in the Atchafalaya, with a very strong current, and $4\frac{1}{2}$ feet over the bar at the lower mouth; showing an increase of deposite of 4 feet on the lower mouth in one month, whilst the relative depths of the Atchafalaya and the upper mouth remained the same.

On the 13th of November, 1839, the main part of the lower mouth was full $2\frac{1}{2}$ out of water; there was $7\frac{1}{2}$ feet in the channel over the bar at the upper mouth, and $5\frac{1}{2}$ feet in the Atchafalaya, the stage of water being the same as on the 18th of January, showing that the difference, $2\frac{1}{2}$ feet between the two bars, was caused by deposite, and not by the wearing away of the bed of the Atchafalaya.

The large island in front of the Red River landing, (*vide plan*.) made its appearance during the low water of 1838; since then it has extended to the position marked upon the plan, and its crest is now within a few feet of the high lands of the Mississippi. In the space comprehended between the point of

this island, (A) and the bar opposite, (G) there was during the very low water of 1838, more than 30 feet water. The same stage of water would have given, (Nov. 1839,) scant 13 feet in the deepest part. My examination, made this season, shows a remarkable change in this portion of the river. By referring to the plan, it will be seen that this large basin has filled up, leaving an outlet over 250 feet wide, one half of which has but four feet at dead low water, with the greatest depth 11 feet, whilst the greater portion of the basin, in which we had over 20 feet three years since, is now several feet above the surface of low water. Mud banks have formed in the centre of the channel, leaving a shoal on one side, and a channel way on the other only 100 feet wide. The river, at the bar of 1839, has contracted to one third of its former width, and instead of cutting a deeper passage by this operation, it is slightly shoaler than in 1839. The present crest of the bar is about 1200 feet above the old bar, the water in this place being shoal throughout, and the bottom compassed of hard and extremely tenacious blue clay. At the lowest stage of water this season, there was scant 2 feet over the bar. The fall from the surface of water on the bar to the Mississippi river was $14\frac{1}{2}$ inches, giving a current of full $5\frac{1}{2}$ miles to the hour, being much greater than any current in the Mississippi. Notwithstanding this exceedingly heavy current, the bar remained firm, being composed of the blue clay of the Mississippi, and the volume of water not being sufficient to force a passage. The water in the Mississippi, this season, at the foot of the cut-off was nearly 2 feet higher than the dead low water of 1838, showing that the bar in the upper mouth was actually 14 inches above dead low water mark: and I have no question that the bar would have remained firm, if the water had been this season at its lowest stage.

I find that the water is shoaling very fast throughout the whole extent of Old River, from the cut-off to the mouth of Red river, and that the bar at the latter place, is rapidly increasing whilst the depth of the water from Red River to the Atchafalaya remains unchanged. In November 1839, I established bench marks at various places, from which the changes might be taken at any future day with perfect accuracy; and from the comparisons of the levels taken during 1839 and 1842, the following results are obtained.

Difference in stage of water November 1839 and 1842, $3\frac{1}{2}$ feet—the water of the latter year being lower.

	DEPOSITE.	DEEPEST WATER.
	feet. in.	feet. in.
Nov. 1839, bar in the upper mouth,.....		7 6
Nov. 1842, same point,.....		4 0
Difference $3\frac{1}{2}$ feet, which is difference in stage of water.....		
Nov. 1842, present bar,.....		2 0
Increase of deposite.....	2 0	
Bar at the Red river, 1839,.....		31 0
do do 1842,.....		20 9
Difference 10 feet; deduct $3\frac{1}{2}$ feet difference of water, leaves deposite.....	6 6	
Difference at Mill house,.....	5 6	
Bar at mouth of Atchafalaya, 1839,.....		5 6
do do 1842,.....		5 6
Bar at mouth of bayou Corille, 1839,.....		4 0
do do 1842,.....		4 0
Showing that these bars have cut $3\frac{1}{2}$ feet.		

It is perfectly evident that had the Atchafalaya been closed previous to making the cut-off, the difficulties which now exist would not have been formed, at least not to their present extent. Throwing aside then the cut-off, as the prime cause of the evil, we take up the Atchafalaya as the present cause of the deterioration of the channel. We find that this stream has deepened its channel $3\frac{1}{2}$ feet since 1839, and that the bar in the upper mouth has shoaled 2 feet by deposits. I cannot agree to take up the position, that this increase of deposite has been formed by the cutting of the Atchafalaya alone, as we find that the deposite commenced, and rapidly went on before the bed of the Atchafalaya had cut one inch. Had the bed of the Atchafalaya remained immovable, the deposite would have still been made, *certainly* to an extent sufficient to destroy the low water navigation, and *probably* to have closed the upper mouth entirely. If then this event would have taken place without the cutting of of the bed of the Atchafalaya, how much more rapid will be the increase of the evil, when assisted by the rapid deepening of the bed of the stream. The distance to tide water from the mouth of Red river by the Atchafalaya, is about 30 miles, whilst by the Mississippi river it is at least 175 miles. I am inclined to believe that the removal of the bars in the Atchafalaya, has taken place since the clearing of the raft; if so, what may we

expect the effect to be this coming season, when for the first time a full volume of water passes through it.

By reference to the plan annexed, it will be seen that the summit of the bar has advanced towards the mouth of Red river during the last three years one-fourth of a mile, which would lead us to suppose, that it might continue to recede from the Mississippi, leaving a deep channel behind it; but by referring to the tabular statement, we find after deducting the difference of the heights of the water during 1839 and 1842, that the bar has remained unchanged, and by the increase which has since taken place above, we are compelled to admit that the upper mouth must inevitably fill up unless by some means it can be prevented,

As a means of checking the influence of the Atchafalaya, and keeping open the communication of Red River with the Mississippi, a cut-off in the latter stream, from the head of Barker's settlement, through to Tunica bend has been proposed.

The first thing for us to consider is the influence which this cut-off would have upon the Red River. During the low water this season, the fall from the bar in the upper mouth to the Mississippi river, (a distance of about one mile,) was 14 inches, ten inches of which occurred in the first quarter of a mile, below the bar, except when disturbed by boats, remained as clearly as it was above, no perceptible diminution of the bar taking place, on account of the heavy current produced by such a great fall. By making the proposed cut off, we would gain an additional fall in the Mississippi at low water of $3\frac{1}{2}$ feet which would give, in a short time an additional fall at the entrance of the upper mouth of the Red River cut-off of more than two feet. This fall would be of no avail to Red River where the water of the Mississippi was the higher. The water would still run around Old river, and deposit its sediment. The fall would become available, when the Mississippi commenced to drop its waters below those of Red River, and the full effect would take place at dead low water.

Suppose the cut-off to have been in existence during the low water of this season, with the bar in the same position. The fall from the bar to the Mississippi would have been 38 inches; which, if the fall had been equal throughout the whole distance, would have given $9\frac{1}{2}$ inches to the quarter of a mile. I have already shown that the fall which actually existed this season, was 10 inches in the first quarter of a mile; the momentum then, would not be increased throughout this distance, and the bar

would remain as before. If we allow that a greater current *could be instituted, the only effect which it would produce, would be to depress the water over the bar, as its volume is not sufficiently large to force a passage way.* I cannot believe that the making of the 'Tunica cut-off', alone, would prevent the closing of Red River, but for the purpose of showing its operation, let us allow that it will do so.

The surface of water at the mouth of Black River, about 36 miles above the Red River cut-off, has been depressed at least one foot, since the making of this cut-off, and since this depression was made, we have had, during one low water of the river, scant two feet water on the bars around Grand Point, in Red River. The 'Tunica cut-off' would depress the water at the same place, at least one foot more, which, at dead low water, would produce a ripple over all of these bars; so, we find, that by the means we use as a relief to the navigation below, we create an infinitely worse state of things above.

The effect of an extensive cut-off, in so large a stream as the Mississippi, I am confident, is not generally understood. We have been in the habit of estimating the trifling destruction of property in the immediate neighborhood, as the only evil, consoling ourselves for the loss, by the reflection that a vast amount of equally valuable property has been reclaimed; but this idea is, in a great measure, (as I shall presently show,) extremely fallacious; and when we take a more extended view of the subject, we will find that both the profit and loss, as far as the lands are concerned, do not compose an atom, in comparison with the ruinous consequences to the navigation.

The low water this season, at the foot of Shreve's, or Red River cut-off, was two feet higher than the low water of 1838; whilst the water over the bars in the river above Natchez, was two feet lower than in 1838. May I ask how this enigma can be solved? If we allow (taking the water at the foot of the cut-off as a basis) that the volume of water was actually greater this season than in 1838, the ruinous effect of the cut-off stands in bold relief; and if, on the other hand, we allow that the volume of water (taking the water over the bars above as a basis) was actually less than in 1838, we find, that in depressing the water above the cut-off to an extent nearly equal to the fall gained, we increase it below the cut-off to the *full* extent of the fall gained; so that in reclaiming the lands above the cut-off, we flood those below, and that this is the effect produced will easily be seen,

when we reflect that the same volume of water is passed through the cut-off, in a much shorter time than it formerly took, to flow around the bend.

The next thing for our consideration, is the cost of making the cut-off, and whether we can succeed in making it by any reasonable outlay of funds. The distance from bend to bend across the point at the narrowest part, is one mile; with a fall from the upper bank to the lower of $4\frac{1}{2}$ feet. * The soil, throughout a great part of the first half mile, is covered by a deposite of sand, but after the first two or three feet in depth, the ground is very clayey and tenacious. I have been informed by many persons who were familiar with the manner by which the Red River cut-off was made, that a large ditch, several feet in depth, was dug across the point, by Mr. Routh, and that for two years the water swept through it without creating any effect, and not until Capt. Shreve loosened the earth to a great depth, by sinking casks of powder and blasting it, was the cut-off made. The distance across this point was 160 feet. If the water sweeping through this ditch, having a fall of two feet in 160 feet, would not have the effect of producing a cut-off, how are we to expect to make one through a mile of such ground, with a fall of $2\frac{1}{2}$ feet, with a ditch of any reasonable size? No cut-off in the clay lands of the Mississippi can be made by washing—it must be done by the caving of the banks. I have not the slightest doubt that if a ditch twenty feet wide and eight feet deep were dug across the Tunica bend, that it would fill up in two or three years. The current produced by so small a body of water, would not be equal to the light currents of the Mississippi; which currents, unless the water is very deep and the shore bold, rarely produce caving. I, however, think that by digging a very large ditch, and working on it after each fall of water, gradually increasing its size, that the cut-off could be made. To make a canal fifty feet in width by eight feet in depth, it would take the present convict forces one year to do the work. The amount of earth to be removed would be 84,480 cubic yards. The cut-off will be violently opposed by some of the planters living on the bend, who will claim heavy damages; but if it would answer the purpose, without creating a greater evil than the one which it is intended to remove, the cost of the work or damages to individuals, should not deter us, as the safety of the navigation of Red River, is of infinitely more value.

From a fair examination this season, and being an eye-

witness to the effects produced upon the bar by hauling the steamers across it, I am convinced that with one month's work, during the low water of each season, with a suitably constructed dredge-boat, the difficulties occasioned by the bar may be removed, and by the operation of the dredge the water will be brought into a narrow channel, which will be less likely to fill up. Eventually, however, even the operations of a dredge might be overcome, but I do not think that it would occur until the State, from its population and means, would be able to expend a sufficient sum to prevent any difficulty. It is proper to remark that a dredge-boat is sadly needed, for the improvement of many of our most important streams. Her machinery could be so arranged as to make her a powerful snag-boat, and one capable of doing more work than all the boats now in the service of the State. I think that most persons will agree, that even if the proposed cut-off could easily be made, and at little expense, that the dredging should first be tried, as no evil can result from it, and it will not be an useless expenditure. It is impossible to state clearly and knowingly the full effects of the cut-off; and if they should be evil ones, how are we to remedy them? The entrance of Red River into the Mississippi, is not only important as regards the Red River district, but is of equal comparative value to the Opelousas and Attakapas country; for if the mouth closes to such an extent as to prevent the passage of the boats at low water, the Atchafalaya is also shut off.

Should we find that all experiments would fail in preventing this deposit, after every means has been exhausted, and there is no longer hope, as a *last resort*, (unless a portage were used,) we come to stopping the Atchafalaya at its mouth, either entirely, or to such an extent as to prevent the low water of Red River from running into it. If this necessity should occur, upon what terms will, or ought this district to consent? I should think that a demand to the following effect would not appear unreasonable:

1st. The removal of all obstructions in the Atchafalaya, so as to admit of a tide-water navigation to its head.

2d. A levee along the south bank of Red River, to unite with the levee at the Atchafalaya.

3d. The stopping up of the bayou Plaquemine.

4th. A good road for the bayou de Glaize district.

5th. A railroad from the Indian village to the village of Plaquemines, or some near point upon the river.

The 1st and 4th propositions would be absolutely essential to the bayou de Glaize district. The 3d and 5th for the Attakapas and Opelousas, and the 2d, I beg leave respectfully to recommend to your attention, independent of its value in connection with the rest, as a work of high importance. There is but little question that the General Government would grant to the State one half of the lands reclaimed by public levees, for the purpose of internal improvement, if the subject was strongly urged, and we would be deeply repaid, as far as regards the cost of the works, and at the same time the wealth of the State would be increased to a great extent. The effect of this levee would be to confine the waters of Red River during high water, and therefore destroy, in a great measure, the influence of the Mississippi. Its value, in connexion with the closing of the Atchafalaya, would be as follows: By closing the Atchafalaya, the navigation of the bayous Rouge and de Glaize would be, in a great measure, lost; but still the country would suffer annually from the inundation of the low lands. By the construction of the levee, the whole district would be completely reclaimed, and the bayous drain off rapidly the whole of the water caused by rains. On the Atchafalaya, and between it and the Mississippi, and in fact throughout the whole south-western district, comprehended between the high prairie lands and the Mississippi, every acre of land would become fit for cultivation. I am not fully aware of the extent of the work proposed, and therefore respectfully recommend to you, to order the Engineer to cause a survey to be made of it.

All of which is respectfully submitted.

GEO. T. DUNBAR, Jr.,
State Engineer.

[DOCUMENT NO. 3.]

REPORT

Of the minority of the Committee on Internal Improvements.

The Committee on Internal Improvements, to whom was referred the subject of repealing the resolutions of this General Assembly of Louisiana, approved March 25th, 1844, "requiring

the *State Engineer* to open a cut-off at the Raccourci bend, on the river Mississippi," differ in opinion, and the minority beg leave to report :

As the great valley drained by the Mississippi is reduced from a natural condition, to a state of cultivation, in northern latitudes, the snows that accumulates during the winter, from exposure to the sun, will thaw faster, and the water thus produced, together with that which falls in rain, encountering fewer obstructions on the surface will flow more rapidly to the ravines and vallies.

The vast system of minor streams which, from the natural drains of the country, will be cleared out, both by the decay of logs and brush and by the labor of the agriculturist. Lakes, fens and swamps will be drained to prevent noxious influences, and to reclaim land ; while numerous ditches will be formed to aid in carrying off, more rapidly, the water from the surface of cultivated grounds. As the water courses increase in magnitude, they will be cleared out for secondary navigation and to prevent inundations ; rafts and other obstructions will be removed from the principal rivers for the extension of steam navigation, and in such instances as Red River, the Arkansas and many other tributaries, levees will be raised to confine the stream to its proper channel, preventing the waters from spreading over the vallies, and causing them to rise higher and faster, and to sweep on to their destination with accelerated velocity. Thus the tendency of settling the country above us, will be to cause the waters throughout the great valley to be precipitated more rapidly into the Mississippi, and especially that portion below the mouth of Red River, through which the united volume of more than 1700 navigable streams is discharging into the sea.

Observation teaches us that when the longitudinal slope of a river is large above, and becomes gentle towards the mouth, the waters do not rise high in the upper regions, but pass off rapidly to the lower plane, where on receiving a check from the reduced inclination they rise until a sufficient elevation is attained to compensate for the reduced inclination of the bed. The Nile is an instance of such a river. Again, when the longitudinal slope of a river is composed of a series of steep and gentle inclinations, it is observed that the water will rise less upon the steep and more upon the gentle planes—the same principle prevailing as before illustrated. The Ohio, Potomac and Susquehanna, and most rivers of considerable length, may be cited in

proof; and the lower portion of the Mississippi may be converted into another instance by cutting through its principal bends, thereby forming a series of steep and gentle planes.

From the lower end of the proposed cut-off at Raccourci bend to the mouth of the Ohio is, in round numbers, 800 miles; in a direct line about 400. Now it will hardly be denied that if the channel of the Mississippi were straight between these points, the fall being the same, and the constant retarding influence of the bends removed, the waters from above would be precipitated with greatly increased velocity into the serpentine channel of the river below Raccourci bend. If this fact (which is self-evident) be admitted, the following consequences would ensue: When the river above is in flood, so soon as its discharge becomes equal to its present capacity, the river below the cut-off would also be discharging a volume equal to its maximum capacity; for the levees are only equal to controlling the highest floods under existing circumstances. But as straightening the channel above will cause a large additional amount of water to pass in a given time, the river would rise above the levees, and sweep over the valley to the Gulf of Mexico—presenting a case analogous to the Nile. If, on the other hand, we suppose the river partially straightened by Shreve's cut-off and the Raccourci cut-off—*bringing two points on the river, formerly 48 miles apart, within four miles of each other*—the result would be comparative, and the effect, in practice, the same as removing a dam or cataract from the river, whose height is equal to the fall of the Mississippi, at high water, for 44 miles.

Shreve's cut-off shortened the river 16 miles, and the proposed Raccourci cut-off will reduce the length 28 miles more—in all 44 miles. Now, as it is only about four miles from the upper end of Shreve's cut-off to the lower end of the proposed Raccourci cut-off, we may regard the two bends as one, and that by a cut of four miles we have shortened the river 44 miles. The surface of the Mississippi, at the point in question, when the water is low, falls a little more than an inch to a mile; when the water is high, about $2\frac{1}{2}$ inches to a mile; and as the alluvion which constitutes the banks of the river has been deposited at high water, it follows that the plane of the banks must correspond very nearly with the plane of the water in floods, and that the valley at the lower end of the proposed Raccourci cut-off, will be about ten feet lower than at Shreve's cut-off, now only four miles above, and formerly forty-eight miles.

The rise that will take place in the planes of the river below the cut-off, will be equal to the fall above, subtracted from the whole fall around the bend, minus the fall through the cut-off. Now as the bend in question is twenty-eight miles round, the fall at high water, two and a half inches to a mile, and the cut about one mile: the entire fall would be about five feet seven inches, and the rise below the cut-off will be the difference between five feet seven inches and the amount the plane of the river is reduced above the cut-off.

We have shown that the velocity of the waters will be accelerated throughout the whole valley, and as the tendency of the soil to wash is very much increased by cultivation, it also follows that our rivers will receive a larger amount of detritus than formerly, and that the present capacity for forming shoals and bars will be increased. But as the velocity of a river is increased, so is its capacity for transporting detritus; and as the velocity of the lower portion of the river will be materially greater from being confined to its channel by high levees and venting more water in a given time, it follows that the heavy sand, formerly deposited in the upper portions of the river, will be brought lower down and precipitated where the current is too much diminished to bear it longer in suspension; and as the channel is very deep below the proposed cut-off, and the velocity of the surface of the stream is greatest, and diminishes towards the bottom where it is least, (and in the case in question, not more than three fourths the velocity at the surface) the tendency of the bed of the river to rise will be increased, and the surface of the water will consequently assume a higher level. The following extract from the remarks of Professor Mahan, on rivers, in his elementary treatise on civil engineering, will show what has been the practical result upon the river Po, and several other instances might be cited, both in Europe and Asia.

"In confining the water between levees, two methods have been tried; the one consists in leaving a water way strictly necessary for the discharge of freshets; the other consists in giving the stream a wide berth. There is an example of the first method in the Po, in Italy, the effect of which has been to raise the bed of the stream so much that in many parts the water is habitually above the natural surface of the country, leaving it exposed to serious inundation, should the levees give way. The other method has been tried on the Loire, in France, and ob-

The minority of your committee differ also with the majority, in the opinion that the navigation at the mouth of Red River will be improved by lowering the plane of the Mississippi; and in point of fact, that the navigation over the Shoals at Grand Point has been improved by the Red River cut-off. We beg leave to refer to the report, 11th January, 1843, of Geo. T. Dunbar, Esq., late Engineer of the State, for a full and conclusive investigation of this branch of the subject. The minority of your committee, therefore, recommend that the resolutions be adopted.

All of which is respectfully submitted on behalf of the minority.

W. S. CAMPBELL, Chairman of the
Committee on Internal Improvements.

[DOCUMENT NO. 4.]

NEW ORLEANS, March 16, 1846.

Gentlemen: I have had the honor to receive your note of the 13th inst., requesting a statement of my views in reference to the effects likely to be produced by the completion of the Rac-courci cut-off.

This subject has been so ably discussed by Major W. S. Campbell, in a report to the House of Representatives last year, and recently by the State Engineer, that it is scarcely necessary for me to do more than say that I fully concur with those gentlemen, in the views they have expressed.

The work will be productive of most mischievous consequences to the lower part of the Mississippi, and the benefit expected to result to the part above the cut-off, by a depression of the surface of the stream, will be, in a great measure, counter-balanced by the more rapid caving of the banks.

The effect of the proposed work upon the navigation of Red River, will be, in my opinion, to shorten the period of safe and easy navigation, and to increase the difficulties of the navigation, or even render it impassible during extreme low stages of water. At such times, the current rushes out of Old River with a velocity too great to be stemmed by steamboats. The cut-off will produce a reduction of two feet in the low water level of the Mississippi at Shreve's cut-off. This additional fall will obviously cause a great acceleration of velocity, and depression of the sur-

face in Old River; sufficient, in my opinion, to justify the prediction that boats would not be able to pass into Old River at all during low water.

Very respectfully, gentlemen,

Your obedient servant,

T. B. LEONARD,

Capt. T. Engineers.

Hon. G. Mayo, J. Taylor, W. S. Parham, Committee.

[DOCUMENT NO. 5.]

Gentlemen:—In reply to your request of the 13th instant, I answer, that in my opinion the Raccourci cut-off, (if ever made) will operate to the serious detriment of the navigation of the Red River.

You must have observed that all navigable streams during the lower stage of water, degenerate into a system of pools or basins formed by shoals and rapids and at times, dams that require locks to pass them.

For example, the Mississippi river, beginning at the mouth, we find a bar on which the water is only from 14 to 16 feet in depth, but immediately above the basin is about 150 feet in depth; past this city for miles above, and the river is formed of a series of such shoals and pools up to the first rapids which are between St. Louis and Rock River, where the fall being about twenty feet, can only be passed in summer by small keel boats and flats. The Ohio is to the fall at Louisville a fine mill dam, above the Red River, the same to Alexandria. Cut away the dam, the river gives near a similar effect on a smaller scale. True, should the Raccourci be made, the Mississippi river, the mouth of Red River will be lowered, and to keep Red River navigable, its channel must be deepened at its mouth and the water in the basin above lowered, which system continued, will ultimately ruin the navigation of Red River.

You will not understand me as predicting the failure of the navigation of Red River, there cannot be a doubt that navigation can be both preserved and improved, but the manner will require a careful examination, and until that has been decided, the friends of the navigation of Red River should oppose all cut-offs below the mouth of Red River.

(Signed)

H. S. R.